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## (SUBSTITUTE) ABSTRACT

A method of transmitting a data bit stream on a multi-carrier transmission system is provided. The steps include estimating a signal to noise ratio for each carrier for a known transmit power for each carrier, allocating a quantity of bits for each carrier within limits imposed by a target bit error rate and the estimated signal to noise ratio, computing a total excess power available for a current allocation of bits, computing additional power that would be required by each carrier to carry additional bits, and allocating the total excess power based on the computation of additional power required by each carrier to carry additional bits. The computation of additional power needed may be performed by computing the additional gain necessary to carry additional bits or by computing the additional excess power necessary to carry additional bits.

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